THE CHILKOOT TRAIL TRAMWAYS

During the Klondike gold rush, three aerial tramways and several surface hoists operated over the Chilkoot Pass. Two of the tram-ways are significant engineering feats. The Chilkoot Railroad and Transportation Company crossed a distance of 2,200 feet in one span, then the world's longest, and the Dyea-Klondike Transportation Company was one of the first aerial tramways powered by electricity. These tramways and hoists were important final links in the chain of developments to make Dyea and the Chilkoot Pass the dominant route to the interior. However, they failed to successfully compete with the White Pass and Yukon Route railroad and most were bought out by the Skagway road.

The Peterson Hoist

P. H. Peterson, a ferry operator from Juneau, installed a simple hoist at the Scales before the main rush occurred. Stampeder William M. Stanley describes the operation:

> [Peterson] anchors a pulley at the top through which he passes a rope, to which is attached a box, rigged on runners. A loaded sled is made fast to the rope at the bottom, the box is then filled with snow, to which is added the weight of the inventor and such other men as may be at hand. When this loaded box descends it pulls the sled up, where it is detached. The box is then unloaded and drawn back to the top when the operation is repeated as before.

In 1894, Peterson had previously attempted to do the same operation with seal skins instead of a box with runners but it failed. He returned in 1896 with the gravity hoist described above. According to a sourdough known only as "Slivertip," Peterson charged four bits a load. On February 17, 1898, he leased his tram to J. F. Hielscher of Dyea for five months, the peak months of the rush. He received a half cent royalty on each pound carried by the operation.

The exact location of the Peterson tram is unknown. He may, in fact, have operated on the nearby Peterson Pass (which was named after him) instead of the Chilkoot Pass. There are many artifacts in the vicinity of the pass but because of its simplicity, it is difficult, if not impossible to identify the exact line or pulley Peterson used.[1]

Archie Burns' Tramways

Archie Burns was the builder and operator of another early mech-anized hauling operations over the trail. He was born in 1864, and moved into the north country as a young man.[2] During his tenure in the north he worked in a variety of jobs and developed several businesses which involved the transportation and sales of goods. As a prospector he took part in both the Fortymile rush of 1887-88 and the Circle City excitement of 1893-94.[3] By late 1894 he had moved to Juneau, and by December of that year had opened up a freighting business there. He continued operating it through the following May, but by June he decided instead to build and operate a restaurant.[4]

His exact whereabouts for the next year are unknown, but he probably resided in Juneau. Wherever he was, he doubtless heard much about the growing movement of prospectors over Chilkoot Pass, and probably heard about Peterson's tram, which was operat-ing over the pass in the spring of 1894 through 1896. Accordingly, this "schemer of restless energy" set out to claim as much of the Chilkoot Pass business as possible for himself. In the fall of 1896, he claimed the summit of the Chilkoot for a trading and manufacturing site, effectively blocking out all competitors. Soon afterwards, he was operating a horse-drawn tramway system through the spring of 1897. This tramway lifted goods from the Scales to the false summit. In addition to his tramway business, Burns also was hauling goods on the trail below the Scales.[5]

Several passing travelers noted Burns' operation. Inspector W. H. Scarth emphasized its simplicity. Stopping at the Scales, he wrote that "there is a sort of tramway running up to the top from here, which is run by horse power. It is only a sled let up and down by a rope, which is passed around a dead man at the top." A guidebook published that year noted that "an enterprising man named Burns has rigged a windlass and cable there, and with this he hoists up some freight at a cent a pound." J. H. E. Secretan observed that "some enterprising individual had established a wire cable for the last six hundred foot lift, worked by two wretched horses, who were plodding around in a circle, winding up sleigh-loads of supplies and passengers at one and one-half cents a pound. I heard casually that this gentleman was clearing one hundred and fifty dollars a day by the operation." Secretan watched a woman being pulled up in one of the sleds.[6] Joaquin Miller, who was not a direct observer of the operation, noted that Burns "set up an elevator here ... and used it with great results till the snow faded away." Goods were brought up the

slope on "a sort of street car sled." A Juneau newspaper, perhaps citing the name of the manufacturer or its design type, called it "the Nash tramway at Dyea." Its design was similar to those used around many Western mining camps.[7]

In the summer of 1897, Burns probably returned to Juneau, but stayed there for only a short time. By mid-August he was on the trail again, driving a herd of cattle to Dawson. He returned to Juneau in late October via Chilkoot Pass, and was soon residing back in the country between Dyea and Chilkoot Summit.[8] Taking full advantage of his experience and the available opportunities, Burns was an active businessman during the winter of 1897-98.[9] His financial interest in the tramway was apparently purchased by Juneau merchant C. W. Young, and for the next several months Burns served as the manager of the C. W. Young Freighting and Trading Company. This firm was a major packer over the Chilkoot Trail. In order to guarantee the smooth access of his pack trains, one of his duties was to maintain portions of the trail surface.[10] In addition to packing, the company also operated what was advertised as "the old, established and original summit aerial tramway."[11] Under Young's ownership, Burns operated several tramways between the Scales and the summit at various times during the winter. None, however, was an aerial tramway. One surface tram was run by steam power, the other by gasoline.

Although Burns operated these businesses as a manager and not an owner, his name was either formally or informally associated with them. Observers noted, for instance, that the various tramways bore Burns' name. In addition, the company's Dyea stables, located on River street south of Fifth street, were called Burns' Stables.[12] A third business enterprise in which he was probably associated was a store and hotel in Sheep Camp. Advertisements indicate that the C. W. Young Freighting and Trading Company had a branch office in Sheep Camp, and that C. W. Young also ran a supply store there. No business of Archie Burns' is listed. A news article in April 1898, however, notes "Archie Burns' store" at the north end of Sheep Camp.[13]

By April, Burns had been operating a motorized tramway for some time. Although one account suggested that he began operating this service in early December 1897, he probably did not begin until the middle or end of January 1898. On December 17, stampeder Harvey Condon noted that "about 20 of us helped pull Archie Burns' boiler on a big sled up to the falls."[14] On January 19, the Dyea Trail announced further progress, stating that "a steam engine for handling Burns' cable is being placed on the summit by

Captain Purvis of this city."[15] The tramway began advertising on January 19; it probably commenced operations shortly afterwards. It appears that Burns did not own the tram, instead, it was part of the C. W. Young Freighting and Trading Company, but like the other enterprises, his name was commonly associated with it.

For the next two months, Burns ran the only tramway operation that ran directly up Chilkoot Pass. For the first month or more, before the Peterson tramway began operating, his only competition came from Indian packers. He profited handsomely from the growing traffic.[16] By late February, his tram was lifting five tons of goods daily up the slope from the Scales. His rates apparently fluctuated according to the demand for services; on March 2, he charged two cents per pound, but later he charged four cents per pound or more.[17]
Shortly after he put it into operation, Burns apparently found his steam-powered tramway in need of assistance. Perhaps it was not sufficiently strong to haul the necessary loads; perhaps Burns had difficulty in securing an adequate supply of unfrozen water with which to operate his boiler; perhaps he simply needed more capacity than the steam boiler could supply. For whatever reason, Burns supplemented the steam-powered tram with a gasoline hoist. The steam hoist continued operating until late spring.[18]

The gasoline-powered tramway was introduced by mid-April. It was described as "simply a pulley drum and gasoline engine at the summit of the pass, and enough rope to reach the bottom. Sleds were hitched onto the rope, which was wound around the drum and it pulled them to the top."[19] A stampeder who helped run the operation for a few days wrote, "I staid [sic] in the tent at the top of the hill and run the engine but when the load got to the top would have to go out and unload. They use a hoisting engine with a long wire rope around a drum with a sled at each end of the rope and when the loaded sled is going up the hill, the empty one is going down. Take about 1000 or 1500 lbs. at a load." He added that he did "not want to stay on the summit all the time as it was too exposing. The engine room is very warm and one will take cold every time he goes outdoors."[20] Paul Mizony, an observer of the operation, called it "a freight carrying device consisting of a cable and a stoneboat sled, operated by a winch." Mizony noted with amazement that the sled once hauled up a man weighing almost six hundred pounds. Burns' office was apparently a canvas tent, located just east of the Scales' largest restaurant.[21]

It is not known if Burns operated a horse-powered tramway on Chilkoot Pass during the winter of 1897-98. Two sources suggest its possible existence. Will Patterson, who visited the area in mid-April, noted the presence of "sleds drawn by whims or steam trams." Also, the Dyea Trail noted that in addition to a gasoline sled "there were a number of other schemes of a similar class, but all working about the same way."[22] This would include the Peterson tram which was probably operating in mid-April, however no known diaries specifically mention its existence. If it did operate, Burns would have had to replace his original materials; the whim previously in use was chopped up for fuel while Burns was in the interior.[23]

Burns continued to operate the pack train and tramway through April 1898. He apparently severed his working arrangement with Young in April or May 1898, and soon afterwards headed north for Dawson, hauling supplies down the Yukon River by scow.[24] That November, he was running his own business once again, operating the Archie Burns Freighting Company out of his Dyea stables. Taking advantage of the Atlin traffic, the business remained active through January 1899, and possibly for the remainder of the winter.[25]

Meanwhile, Burns commenced operating his horse-powered tram over the summit again. His operation was similar to that of two years before, but instead of using two horses to power the tram, three or four were used.[26] Burns was apparently convinced that the packing and tramway business would continue to be lucrative, for in January 1899 he agreed to purchase the C. W. Young Trading and Transportation Company from Young for $5000. Assets in the company included "30 head of horses and harnesses and pack-saddles, 4 bobsleds, 1 wagon, 1 lot and warehouse thereon, 1 lot and barn thereon." This company had been the fourth Dyea concern with which Young was involved. After January 1899, Young had no further financial interests in Dyea or along the Chilkoot Trail.[27]
Burns closed his tramway for the last time in the late winter or spring of 1899, probably at the same time as he stopped operating his pack trains. Soon afterwards he left for Nome, but in the fall of 1900 he returned to remove his tramway machinery from the pass. How much he took is unknown; based on present-day evidence, he removed the more valuable or more portable portions of his operations. Burns was last known in the Fairbanks area.[28]

The specific location(s) from which either the steam-, gasoline-

or horse-powered tram operated is not known. Today, several significant artifacts remain of Burns' operations. The remnants of an engine which may have once powered the steam-powered tram are located on the false summit. Another probable artifact from the operation is a large boiler, located in the Scales area. The engine remnants include a drum and line counter. This assemblage consists of a large metal cylinder, 26 inches in diameter and 56 inches in circumference, and several adjacent metal parts attached to a wood frame which is 58 inches long. (Burns probably removed the engine itself in the fall of 1900.)

The boiler, located slightly off the trail at the southern end of the Scales, is 8 feet long and 3½ feet wide, and is in excellent condition. No evidence directly ties this boiler with Burns' operation, but no other boilers were known to have been brought to the Scales area. Probably Burns or someone else dragged the boiler down from the false summit, then abandoned it at the Scales.

The gasoline engine, with its accompanying winch, lies midway between the false summit and the top of Chilkoot Pass. For some reason, Burns did not remove this engine; perhaps it was buried by snow when he attempted to retrieve it. Today the engine apparatus is in good condition. It is 11 feet long, 2½ feet wide and 2½ feet high. It is mounted on wooden skids. The remains of the horse whim is nestled in the notch just north of the false summit.[29]

The Dyea-Klondike Transportation Company

The Dyea-Klondike Transportation Company first entered into the commerce of the Chilkoot trail in late September 1897, when it claimed a wharf site along the west side of the Taiya Inlet, three miles south of Dyea.[30] The company was headquartered in Portland, Oregon, and its intention was to operate a coordinated transportation system over Chilkoot Pass. Plans originally called for a dock to receive goods in Dyea. From there, a "narrow gauge tramroad with cars like those used in the mines" was proposed to head up the pass. At the end of the line, an aerial tramway was proposed. In December 1897, it was claimed (perhaps too optimistically) that the company "has two 5,000 foot cables up side by side which run on a 20% grade. The cable used weights 1½ pounds to the foot." Construction of the line was expected to be completed on March 1, 1898.[31]

Based upon those ambitious plans, construction proceeded. Work commenced at the wharf, and by the fall of 1897, press releases announced that construction was well underway. A huge boiler and adjoining dynamo, which were destined to power the system may have been moved up to Canyon City by this time.[32] Soon after the company's initial push, however, progress slowed. In late December, it was reported that DKT president Thomas I. Nowell encountered financial reversals in local mining ventures.[33] He was therefore forced to leave the firm. The reorganized company had fewer monetary resources.

The company apparently anticipated the financial crunch, and by early December, its officers recognized that the competing tramway line (the CR&T) was also under construction. Therefore, the company made more modest efforts.[34] It planned, and eventually implemented, a tramway that went only between the Scales and the summit of Chilkoot Pass. Instead of a tramroad, it chose horses to carry goods up the lower part of the trail.[35] The power plant at Canyon City, which had earlier been planned to propel the tram road, was instead projected to power a bucket-type tramway system. Electricity from the power plant was to be conveyed to the Scales by means of a seven mile power line.[36]

The powerhouse was the basis for the tramway system. It was built on a knoll overlooking the Scales and was situated so that the hanging tramway cables would not interfere with the other packing operations. The building was a vertical-board wooden structure. It was actually two parallel, offset, simple gable buildings, with one wall partially common to both buildings. One portion of the building, which contained a protruding stovepipe, may have been a bunkhouse for the workers, while the other part of the structure contained the tramway's gears, cables, and other machinery.[37] Today, the ruins of the building measure 60 feet by 30 feet.

As historical photographs show, the building was by no means imposing, but it was one of the few wooded buildings in the Scales area. The Scales was very active during a few memorable weeks in the spring of 1898, but it was a short-lived excitement, and few stayed there. It was cold, snowbound, exposed and prone to avalanche. Many of those that did reside there worked for the various tramway operations.[38]

The tramway system, with its powerhouse, its cables and the small towers which carried those cables, was erected during the winter

of 1897-1898. The exact dates of construction are unknown. On March 14, the DKT company announced the opening of its tram and boasted that it was "the only tramway in the world operated by electricity."[39] For over a month during the spring of 1898, it was the only aerial tramway open over the pass.

The completed system was of limited capacity, but it worked. The cable was 2,400 feet long.[40] In April 1898, a correspondent for the Dyea Trail explained its operation:

> It simply carried goods from the bottom of the pass to the top. All there was to it was a heavy cable stretched from the top of the pass to the bottom. On this cable were buckets, swing onto wheels, that were hauled to the top of the pass by a steam engine. There were two buckets and each could carry about 500 pounds. They made the round trip in about fifteen minutes, and were kept busy all day long. There were no supports to this cable, except at the ends, and in one place it swung about 300 feet above the ground. This cable road charged 5 cents a pound to take freight from the bottom of the pass to the top.[41]

The tramway ran for a relatively short time. In June 1898, the three aerial tramway companies merged. Various histories have stated that the three continued to operate on a cooperative basis for the next year or so. No accounts or reports, however, mention the DKT tram as operating after July 1898, and the company was sold to George Teal, its main mortgage holder, in early August.[42] J. N. Teal, the company's secretary, attempted to get the tramways running during the winter of 1898-1899, but apparently nothing ever came of this.[43]

In order to prevent competition, the various trams were purchased by the White Pass and Yukon Route railway in late June of 1899.[44] Soon afterwards, they began to be dismantled. The DKT company was the first to have its equipment removed.[45] Removal began in the fall of 1899, but George Teal, the former DKT cashier, still held a mortgage on the system. The White Pass railroad, therefore, was prevented from removing all of the company's equipment, and some of the items that were spared by the removal crews remain along the trail today.[46]

At the southern end of the Scales, a large, collapsed mass of boards is all that remains of the DKT powerhouse. It is the most extensive historical resource in that area. The company's steam

boiler at Canyon City also remains but the electric generating plant is gone. At least one standing and a number of downed power poles are also left.

The Alaska Railroad and Transportation Company

The Alaska Railroad and Transportation Company, also know as the Alaska-Pacific Railway Company or the Oregon Improvement Company, was one arm of the vast Pacific Coast Steamship Company, a corporation which operated both railroads and steamship lines along the West Coast.[47] Completed after the Dyea-Klondike Transportation Company's setup, the AR&T operation boasted a longer length, more freight-carrying capacity and higher technological sophistication than the DKT tram. The AR&T tram, in turn, was outclassed by the still larger Chilkoot Railroad and Transportation Company operation, which was the last of the three aerial trams to open.

The AR&T showed interest in the area in the early days of the gold rush. In early December 1897, the company established a claim for a trade and manufacturing site in Pyramid Harbor, twenty miles to the south of Dyea. In late December 1897, company representative A. R. Cook located a 36 acre wharf site on the east side of Taiya Inlet, approximately two miles southeast of Dyea. Soon afterwards, he also located a ten acre site a mile north of town for a "station and warehouse." By mid January, Cook had also filed for a ten acre depot and warehouse site, "twelve miles from Dyea, near Sheep Camp." The company's supposed intention, at that time, was to build a railway line north, but nothing more was ever heard of that plan.[48]

Unlike its competitors, the AR&T did not advertise in the local newspapers, and news about the construction of its tramway did not identify the company by name. The other two tramways were also being constructed at this time, therefore, it can only be assumed that sometime after mid-January, the company abandoned its railroad plans. Officials probably intended that the railroad would operate as far as the tramway site, but no railroad was ever begun.

It is not known when the construction of the tram began, but original estimates called for its completion by March 1, 1898.[49] The first physical evidence of the line's existence dates from April 3, 1898. On that date, the huge Palm Sunday avalanche cascaded down on the Chilkoot Trail, killing over fifty stampeders. The slide tumbled dangerously close to the AR&T powerhouse,

which was located just north of Stone House and approximately two miles north of Sheep Camp. As the powerhouse was the nearest building to the slide site, some victims of the avalanche were brought there. Robert F. Graham, noted that twenty-three bodies, all of which were construction workers on the Chilkoot Railroad and Transport Company tramway were brought to the powerhouse by April 7.[50] At the time of the snowslide, the much-ballyhooed (and much-delayed) CR&T tram was better known to the stampeders than the AR&T tram, therefore, many assumed that this powerhouse belonged to the CR&T company.[51] The AR&T tram was not know to be operating at the time of the avalanche.

The powerhouse built by the AR&T company was sturdy, and part of it was constructed on pilings.[52] It is not know why the firm chose to locate its powerhouse where it did. As a gasoline-powered tramway, it did not need to depend on either water or wood, it only needed a relatively level area for its powerhouse. The building could therefore have been located most anywhere along the trail, but its location, off the main trail and midway up Long Hill, appears perplexing. Perhaps the planners of the proposed railroad felt that the tracks could go no higher than this spot. The AR&T company, unlike the other aerial trams, did not operate pack trains or wagons in conjunction with it operations. Neither did the firm openly contract services to independent freighting companies.

The AR&T tram opened sometime after mid-April 1898.[53] Powered by a gasoline engine, the line carried its cargo about six thousand feet northward. Of the three aerial cable operations, the AR&T tram was the center tram in the "Golden Stairs" area; it was east of the CR&T tram, and west of the DKT route.[54] The line terminated at the station immediately north of Chilkoot Pass and just west of the trail.[55]

Unlike the DKT tram, the AR&T was a single rope tram system (where buckets were attached to a single moving wire rope). Many tramway towers were built along the AR&T right-of-way. Goods were carried, very slowly, over the pass by a long series of buckets. Going up Long Hill, the tram cables drooped so low between the towers that many packers helped themselves to the cargo by simply reaching into the swinging buckets.[56]

The line did not operate long. In May 1898, the CR&T tram was finally placed in operation.[57] The various tramways competed against one another for only a few weeks, for in June, they signed a working agreement to charge a uniform rate to haul goods

between tidewater and the lakes. The AR&T tram may have operated as late as the latter part of June 1899, when it was purchased by the White Pass and Yukon Route railroad, but no know accounts tell of the tram's operation after the summer of 1898.[58] By that time its usefulness was clearly over, the stampeders had gone "inside," and those wishing to haul freight northward either sent it on the railroad or via the more sophisticated CR&T tramway.

The AR&T equipment was removed in February and early March 1900.[59] Workers took almost everything of value. All that is left are the collapse ruins of the powerhouse and near by out-buildings. Adjacent to the powerhouse is an eleven foot high tramway tower, the only one still standing on the trail. Several collapsed towers also exist.

The Chilkoot Railroad and Transport Company

The Chilkoot Railroad and Transport Company was the longest, most sophisticated and best known of the three aerial tramways built over pass. Several accounts describing the history of the line have been published.[60]

The line was conceived in the summer of 1897. Major officials involved in the venture included Archie McLean Hawks, chief engineer; Hugh C. Wallace, president and construction superintendent; investor Britton Gray; and vice-president G. B. Pierce.[61] At first, the line's directors proposed building a road from Dyea to Sheep Camp and a tram line from Sheep Camp to Crater Lake. Later, it was proposed that the route from Dyea to the site of Canyon City be upgraded to a horse-drawn tram road, and several brochures announced that the company was constructing a railroad up the Taiya River valley.[62] An extension of the tramway from Crater Lake to Lake Lindeman was also considered. Initial reports announced that the line would be completed as early as January 1, 1898.[63]

Financial considerations, however, forced the company to implement a more modest tramway system than was first envisioned. The line, as built, began in Canyon City and stretched nine miles north to Stone Crib, near Crater Lake. The mountainous terrain and heavy snowfall also derailed the directors' plans, and delayed construction schedules repeatedly. Although materials began to arrive in October, construction crews were not able to begin work until December 10, and the line was not completed until May.[64] The opening of the line was a two-stage process. The section between Canyon City and Sheep Camp was finished by

the first week in May.[65] The Dyea Trail announced, perhaps over-optimistically, that the entire tramway system was completed by May 7. One witness, however, noted that the tram did not begin for a week afterwards, and another noted that the tram started operating on May 24, 1898.[66]

When completed, the Chilkoot Railroad and Transport Company advertised an efficient, integrated transportation network stretching from Dyea to Lake Lindeman. Goods off-loaded at Dyea were placed on the CR&T-controlled Long Wharf, and hauled up to the company's large, two-story warehouse located at the foot of Main Street. Goods continued north to Canyon City over a wagon road that had been claimed by the company as a railroad right-of-way. The CR&T tramway began at the powerhouse at the north end of Canyon City. Tramway lines followed the east side of the canyon to Pleasant Camp, then crossed the river and proceeded up the west bank to Sheep Camp. The CR&T operated a second power-house at the south end of Sheep Camp, five miles north of Canyon City. Here the first cable loop ended and the second one began.

The tramway largely paralleled the Chilkoot Trail north of Sheep Camp, and crossed it in several places. The line swung high over the Scales; it then continued past the summit to its terminus, one-half mile north of the border.[67] The CR&T contracted with pack train operators and with Native packers to haul goods the remaining ten miles from Stone Crib to Lake Lindeman.

The various tension stations along the nine mile tramway were only a small part of the diverse CR&T network, but they are among the few artifacts of the system that can still be seen in the field today. Like the tramway towers, the tension stations were built in the late winter or early spring of 1898, and probably lay idle for over a month before tramway operations began.[68] Their purpose was to keep a strong, even tension on the tramway wires. Short tramway lines did not need tension stations; they were able to maintain tension at their terminal points. Due to saddle friction, however, lines such as the CR&T required that tension stations be built every 3000 to 6000 feet along the route.[69]

As a contemporary guide to tramway systems explained,

> the points usually selected [for the tension stations were either] on the side of a hill, or on some level portion of the ground. The track cables are parted at these points, the ends of the upper section of the line

> being counter weighted, and the ends of the lower sections being firmly anchored. The cars pass from one section of the cable to the next by means of intervening rails, so that no interruption occurs in the continuity of the track. Occasionally such a station will happen in a valley or ravine, in which both sections of the line are counter weighted, or it may be desirable to locate such a station on an elevated point, in which case both ends are anchored."[70]

The only two known sites of Chilkoot tension stations were located on the sides of hills.

The CR&T tramway operated intermittently for approximately fourteen months. Shortly after it opened, the White Pass and Yukon Route began constructing its railroad over adjacent White Pass. Passenger traffic over the Chilkoot Trail, therefore, dwindled to a trickle. Freight rates over the tramway line, however, were competitive with those offered by the railroad. As a consequence, tramway business was good. Severe weather during the winter of 1898-99, however, made it necessary for engineers to strengthen key parts of the system. New tension stations, or stronger box-like adaptations of existing stations, may have been built at that time.[71]

In late June 1899, an observer found the tramway line in operation, and laden with Yukon-bound freight. But just a week later the railroad tracks were opened to Lake Bennett, and the tramway was doomed. The rival WP&YR company purchased the tramway, and all operations stopped. In January 1900, salvage operations began. Beginning at Stone Crib and working south, crews dismantled and removed engines, wire, buckets and other reusable machinery. The removal crews were thorough; by the end of April, all that remained were the tramway towers, tension stations, power stations and other wooden improvements.[72] The remains of those items are still seen today by Chilkoot Trail hikers.

A few yards north of the collapsed AR&T powerhouse are the remains of one of the CR&T's tension station. It is a diagonally braced platform of 6 x 6 foot timbers anchored to rock with one inch rods. It is 28 feet long and 8½ feet wide and is located at approximately mile 15.6 on the trail. The remains of another tension station are located just east of the trail at mile 14.5. A large metal wheel seen along the trail at this point was once part of this station. The tramway line that cut through the

forest from Canyon City to Sheep Camp is clearly seen on aerial photographs taken in 1970. It is quite likely that additional tension stations many associated tramway artifacts await to be located.

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Endnotes

1. The discussion on the Peterson hoist is taken directly from Spude, Chilkoot Trail, pp. 195-197.

2. Vital Statistics, Skagway Magistrate's Office, vol. 56, p. 2.

3. Spude, Chilkoot Trail, p. 197; Berton, Klondike, pp. 17-18, 28-29.

4. Alaska Searchlight, 12/31/94, 5/20/95, 6/29/95.

5. Alaska Mining Record, 9/4/97; Spude, Chilkoot Trail, p. 197; Dyea Trail, 1/19/98, p. 2.

6. Scarth, "Diary," p. 5; The Miners' News Publishing Co., All About the Klondyke Gold Mines (New York, the author, 1897), p. 36; Secretan, To Klondyke and Back, p. 44.

7. Alaska Mining Record, 9/4/97; Alaska Searchlight, 3/27/97; Spude, Chilkoot Trail, p. 198.

8. Alaska Mining Record, 8/21/97, 10/23/97; Condon, "Diary," p. 2.

9. His personal life was apparently enriched as well. On January 2, 1898, 33-year-old Burns was married in Sheep Camp to Mary Palmer. Palmer, who was 20 years old, may have been related to the owner of Sheep Camp's first hotel. Vital Statistics, Skagway Magistrate's Office, vol. 56, p. 2.

10. Condon, "Diary," p. 2; Dyea Trail, 1/19/98, p. 1.

11. Dyea Trail, 1/19/98, p. 2, 4/16/98, p. 5.

12. Bearss, Klondike Gold Rush, pp. 123, 127; Deeds, vol. 53, pp. 69, 104, 232.

13. Dyea Press, 4/6/98, p. 1.

14. Seattle Post-Intelligencer, 7/21/98; Condon, "Diary," p. 2. These falls, which were located between Canyon City and Pleasant Camp, may have been the subject of several photo

graphs featuring Chilkoot Trail stampeders. KLGO collection, photos TC11 and TC12.

15. Dyea Trail, 1/19/98, p. 5. Robert L. Purvis lived in Dyea and owned the Palace Hotel. He also owned two lighters, and may have engaged in other freighting business. Norris, "A Directory of Businesses," p. 10; Deeds, vol. 5, p. 183.
16. Yanert letter, 3/1/98; Bearss, Klondike Gold Rush, p. 127; unidentified newspaper article, March 6, 1898, in George A. Brackett Papers, p. 46.
17. Bearss, Klondike Gold Rush, pl. 29; Yanert letter, 3/1/98; Dyea Trail, 8/98, p. 6.
18. Seattle Post-Intelligencer, 7/21/98; John P. Clum papers, p. 44.
19. KLGO collection, photos SS16-SS20; Dyea Trail, 8/98, p. 6.
20. Patterson, "Excerpts," pp. 18-19.
21. Mizony, "Gold Rush," p. 9; KLGO collection, photos SS18 and SS20.
22. Patterson, "Excerpts," p. 17; Dyea Trail, 8/98, p. 6.
23. Spude, Chilkoot Trail, p. 193; Bearss, Klondike Gold Rush, p. 127.
24. Dyea Press, 5/14/98.
25. Spude, Chilkoot Trail, p. 197; Dyea Press, 11/19/98, 1/21/99.
26. Whitaker, photo album, photo 37.
27. Deeds, vol. 53, p. 360; Norris, "A Directory of Business es," pp. 5-6, 20.
28. Spude, Chilkoot Trail, pp. 197-98; Wilkes, "Packers on the Dyea Trail," p. 56.
29. Spude, Chilkoot Trail, pp. 193, 197-98; KLGO collection, slide 1057; McDonald and Davenport, "Cataloguing," pp. 9, 33; Sinnott and Shank, "Cataloguing," pp. 20, 21, 25, 51.

30. Deeds, vol. 17, p. 39.

31. Engineering and Mining Journal, 12/11/97, p. 704.

32. Spude, Chilkoot Trail, p. 198.

33. New York Times, 12/28/97.

34. Alaska Mining Record, p. 199.

35. Spude, Chilkoot Trail, p. 199.

36. Spude, Chilkoot Trail, p. 198-199.

37. KLGO collection, photo SS26; Bearss, Klondike Gold Rush, p. 58.

38. Dyea Trail, 4/9/98; Bearss, Klondike Gold Rush, p. 70, 72, 143; KLGO collection, photos SS3, SS4, SS16-22, SS26.

39. Dyea Press, 5/14/98.

40. Spude, Chilkoot Trail, p. 198.

41. Dyea Trail, 8/98, p. 6.

42. Deeds, vol. 5, p. 334.

43. J. N. Teal to John F. Malony, 2/22/99 (Malony collection, AHL).

44. Deeds, vol. 5, pp. 728-732.

45. Skagway Alaskan, 1/31/00.

46. Dyea Trail, 8/98, p. 11; Spude, Chilkoot Trail, p. 199.

47. Spude, Chilkoot Trail, p. 199; Skagway Alaskan, 1/31/00; The Pacific Coast Steamship Company was a successor to the Oregon Improvement Company. Gerald M. Best, Ships and Narrow Gauge Railroads (Berkeley, Howell-North, 1964) p. 101. New York Times, 4/10/98; Dyea Trail, 4/9/98.

48. Deeds, vol. 17, pp. 62, 106, 107, 171.

49. Pacific Coast Steamship Company advertisement, "Tramways" file, KLGO collection.

50. Graham "Diary," p. 6.

51. Bearss, Klondike Gold Rush, p. 57, 72, 119; Carley, Inventory, p. 463.

52. KLGO collection, photo LH6, slide 323.

53. Tuck, "Klondike Diary," pp. 9-10.

54. KLGO collection, photo SS6.

55. Dyea Trail, 8/98.

56. KLGO collection, photo LH7; Spude, Chilkoot Trail, p. 199.

57. Dyea Trail, 5/14/98.

58. Aylett Cotton, "Memoirs," p. 4; Deeds, vol. 5, pp. 728-732.

59. Skagway Alaskan, 1/31/00, 3/6/00.

60. Bearss, Klondike Gold Rush, pp. 123-28, 273-74; Spude, Chilkoot Trail, pp. 201-203; Hewitt, "Across the Chilkoot Pass," pp. 529-538.

61. Spude, Chilkoot Trail, p. 201; Bearss, Klondike Gold Rush, pp. 123-24; Lung/Martinsen, Black Sand and Gold, pp. 37, 375 photo.

62. Bearss, Klondike Gold Rush, p. 124; Spude, Chilkoot Trail, p. 84. Crude wooden tracks for the horse tram were con structed through much of Dyea along Broadway Street, but they were not completed to Canyon City and they were never known to be used. KLGO collection, photos DB1, DB6 and DC1.

63. Hewitt, "Across the Chilkoot Pass," p. 529; Spude, Chil koot Trail, p. 203; Sitka Alaskan, 12/4/97.

64. Sitka Alaskan, 10/23/97; Bearss, Klondike Gold Rush, p. 124.

65. Hewitt, "Across the Chilkoot Pass," pp. 529-30; McMillan, "Diary," 5/7/98.

66. Dyea Trail, 5/7/98, p. 4; Berkeley letter, p. 6; Lung/Martinsen, Black Sand and Gold, p. 385.

67. The span between towers in the Scales area, totaling over a quarter of a mile, was the greatest distance for any world tramway up to that time. It should also be noted that one of the only known stampeders to ride over the tramway route wrote that he got off at the summit, not at Stone Crib. Inasmuch as freight needed to be inspected by the border officials, it was probably off-loaded at the summit also. Spude, Chilkoot Trail, p. 201; Lung/Martinsen, Black Sand and Gold, p. 392; Cotton, "Memoirs," p. 3.

68. KLGO collection, photos LH4 and LH6; Spude, Chilkoot Trail, p. 98.

69. Hewitt, "Across the Chilkoot Pass," p. 535.

70. Hewitt, "Across the Chilkoot Pass," pp. 535-36.

71. Skagway Alaskan, 2/3/99; Spude, Chilkoot Trail, p. 203.

72. Bearss, Klondike Gold Rush, pp. 273-74.